



BUILDING ENVELOPE/DUCT TIGHTNESS EVALUATION PROGRAM INFORMATION BULLETIN NO. 163

October 1, 2012

City Planning & Development - Development Services

City of Kansas City, Missouri

www.kcmo.gov/planning

BUILDING ENVELOPE AIR SEALING AND DUCT TIGHTNESS TESTING EVALUATION PROGRAM

OVERVIEW

The KCBRC (Kansas City Building and Rehabilitation Code) Update Committee, meeting during the month of April, 2012, was assembled to evaluate a proposal to update the KCMO adopted model codes, including adoption of the 2012 International Residential Code (IRC). The Committee was comprised of a wide cross-section of the development community, including representatives of residential and commercial builders, designers, building owners, trades groups, etc. A number of local amendments were ultimately included to address areas of concern. Several of these related to new energy provisions.

An agreement was reached that the acceptable air-leakage standard for residential buildings would be 5 air changes per hour in lieu of the 3 air changes per hour required by 2012 IRC Section N1102.4.1.2. (Note that if a dwelling has an air leakage rate of less than 3 air changes per hour, then a whole house mechanical ventilation system shall be provided per IRC Section R303.4.)

Further, it was agreed that an exception be added to the duct system tightness standard allowing the duct leakage to be measured to the outdoors in lieu of total leakage, as follows:

1. Postconstruction test: Total leakage shall be less than or equal to 4 cfm per 100 square feet of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

Exception: Post-construction test with leakage to outdoors less than or equal to 8 cfm per 100 square feet of conditioned floor area.

The house and duct leakage standards are mandatory for permits issued on or after January 1, 2014. This level of efficiency is required by the code to be verified by testing each one- and two-family dwelling. However, based on the conclusions reached by the KCBRC Update Committee, the final determination as to whether or not to require mandatory building envelope leakage testing as described in IRC Section N1102.4.1.2 will be delayed until January, 2014, and will be determined based on the results of a sample testing program. In order to evaluate methods of ensuring compliance with the requirements of 2012 IRC Section N1102.4.1.2, CPD-DS will follow the testing protocol described in this document.

ONE & TWO FAMILY DWELLING PROGRAM DESCRIPTION

This program will consist of building envelope and duct tightness testing to be performed on randomly selected one- and two-family dwellings with permits issued between October 1, 2012 and September 30, 2013. Funding for this testing program will be supplied by an ordinance-imposed surcharge of \$50 on each permit for a new one- and two-family dwelling issued during that time period. The purpose of this testing will be to determine whether or not a majority of one- and two-family dwellings constructed under the 2012 IRC comply with the building envelope air and duct leakage standard contained in the IRC and KCBRC.

Testing will be performed by a third-party testing agency in a manner described in the KCBRC/IRC Sections N1102.4.1.2 and N1103.2.2 and results will be reported to CPD-DS and the builder, and tabulated for future reference. The number of dwellings to be tested will be based on the funding available from the permit surcharge, and will be approximately 10 percent of the one- and two-family dwellings permitted during the testing period.

APPLICANT RESPONSIBILITIES

All permit applicants are responsible to contact the CPD-DS Inspections Division when ready for any inspection. The permit applicant may request a “Building/Duct Leakage Test” inspection when the building is ready for testing. At that time the applicant will be notified if the permit was selected for inspection. This testing must take place at any time after completion of the building envelope (including house wrap and window/exterior door installation, and insulation/sheetrock installation) and mechanical ductwork installation. At the builder’s option, if the “Building/Duct Leakage Test” was not previously requested, the testing selection will be communicated at the time of the final inspection request.

Once contacted, CPD-DS will arrange for the building envelope/duct tightness testing to be completed by a third-party testing agency at the earliest possible date and time convenient for the builder, but no more than 10 business days following the request. The final Certificate of Occupancy will be held until the required testing has been performed (however a temporary certificate of occupancy may be issued on request).

Because the leakage standards are not mandatory for permits issued prior to January 1, 2014, reinspection of any failed tests will not be required for final approval and issuance of the Certificate of Occupancy.

RESIDENTIAL BUILDINGS OTHER THAN ONE & TWO FAMILY DWELLINGS

Other residential buildings (three stories or less in height, but not including hotels and motels) shall also undergo a sample program for leakage testing, at an approximate rate of 10% of the new buildings permitted. The permit applicant will be notified of which buildings are subject to testing, and the testing for these buildings shall be arranged by the permit holder from a qualified third-party testing agency.

COMMERCIAL BUILDINGS

Leakage for commercial buildings shall be in accordance with one of the methods prescribed by the 2012 International Energy Conservation Code, as determined by the project’s design professional and identified with the project document submittal.

ANALYSIS AND CONCLUSIONS

Once all data from this study has been collected and analyzed, the results will dictate whether further testing will be required beyond the sample testing period. This determination will be made by the beginning of 2014.

Please feel free to contact CPD-DS with any questions regarding this procedure by calling (816) 513-1511.